

WHAT IS CLAIMED IS:

1. Data repeater equipment having a bandwidth control function, comprising:

traffic amount holding means that holds a traffic amount measured at every short-term period; and  
bandwidth adjusting means that calculates an average traffic amount at every long-term period based on the traffic amount held in the traffic amount holding means, compares a bandwidth value corresponding to the calculated average traffic amount with a first preset bandwidth value, thereby to obtain a difference between the two, and re-sets the first bandwidth value to a second preset bandwidth value that minimizes this difference.

2. The data repeater equipment as set forth in claim 1, further comprising:

alteration decision means that decides whether it is possible to permit the alteration of the first preset bandwidth value to the second preset bandwidth value or not, thereby to either permit or inhibit the bandwidth adjusting means to execute the adjustment, based on the decision made.

3. The data repeater equipment as set forth in claim 1, further comprising:

an interface that cooperates with the bandwidth determination managing apparatus that integrally manages the bandwidths of a plurality of data repeater equipment, via the communication channel.

4. The data repeater equipment as set forth in claim 3, further comprising:

alteration request means that makes a request for permitting the alteration of the first preset bandwidth value to the second preset bandwidth value, whereby the alteration request means communicates with the bandwidth determination managing apparatus to make this request and obtain permission, via the interface, and either permits or inhibits the bandwidth adjusting

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means to execute the adjustment, according to a decision made by the bandwidth determination managing apparatus.

5. The data repeater equipment as set forth in claim 1, further comprising:

a repeater processing unit that performs at least the repeat processing of a packet to be handled and a bandwidth control function, whereby the bandwidth adjusting means executes the bandwidth control to be applied to the repeater processing unit.

6. The data repeater equipment as set forth in claim 5, wherein

said traffic amount holding means includes a traffic amount counter, and the traffic amount counter measures the number of the packets handled by the repeater processing unit.

7. The data repeater equipment as set forth in claim 5, further comprising:

a bandwidth determination unit that holds the preset bandwidth value, whereby the bandwidth determination unit inputs the preset bandwidth value to the bandwidth adjusting means and the repeater processing unit.

8. The data repeater equipment as set forth in claim 1, wherein

said traffic amount holding means divides the number of packets handled during the short-term period by the time corresponding to this period, and uses an obtained short-term average value as the traffic amount to be held.

9. The data repeater equipment as set forth in claim 1, wherein

the bandwidth adjusting means calculates the long-term average traffic amount using a predetermined algorithm.

10. The data repeater equipment as set forth in claim 9, wherein

the data repeater equipment executes the

predetermined algorithm based on a predetermined program, with the predetermined program replaceable with any optional one of a plurality of kinds of programs, without changing the structure of the data repeater equipment.

11. The data repeater equipment as set forth in claim 9, wherein

in the predetermined algorithm, the average traffic amount calculated over the long-term period based on the traffic amount held in the traffic amount holding means, is multiplied by  $k$  (where  $k$  represents a value larger than 1), and the value obtained by multiplying  $k$  is used as the second preset bandwidth value.

12. The data repeater equipment as set forth in claim 11, wherein

in the predetermined algorithm, the average traffic amount multiplied by  $k$  is adjusted to be within a range from a prescribed upper limit value to a prescribed lower limit value of bandwidth setting, and this value is used as the second preset bandwidth value.

13. The data repeater equipment as set forth in claim 11, wherein

in the predetermined algorithm, the average traffic amount is calculated as a constant value over the long-term period.

14. The data repeater equipment as set forth in claim 11, wherein

in the predetermined algorithm, the long-term period is divided into a plurality of time slots, and, in correspondence with each time slot, a past traffic amount in the same time slot is calculated by averaging the records in the same time slots of past, thereby to obtain the average traffic amount.

15. The data repeater equipment as set forth in claim 2, wherein

the alteration decision means holds a plurality of predetermined conditions, decides whether

the second preset bandwidth value satisfies all the conditions or not, and permits the alteration of the first preset bandwidth value to the second preset bandwidth value only when the second preset bandwidth value satisfies all the conditions.

16. The data repeater equipment as set forth in claim 4, wherein

the bandwidth determination managing apparatus holds a plurality of predetermined conditions, when the bandwidth determination managing apparatus has received a request for altering the setting of the first preset bandwidth value to the second preset bandwidth value from the alteration request means, the bandwidth determination managing apparatus decides whether this second preset bandwidth value satisfies all the conditions or not, and when the second preset bandwidth value satisfies all the conditions, the bandwidth determination managing apparatus permits the alteration request means to alter the first preset bandwidth value to the second preset bandwidth value.

17. A bandwidth managing apparatus comprising:

reception means that receives, by cooperating with a plurality of data repeater equipment, a request for altering a bandwidth setting from any one of the plurality of data repeater equipment;

decision means that holds a plurality of conditions relating to the bandwidth setting, and decides whether the request satisfies all the conditions or not; and

response means that makes response to the data repeater equipment to permit the request when the request satisfies all the conditions as a result of the decision made, and not permit the request when the request does not satisfy all the conditions.